NOTE: For the following, the diversion sizes are:
Small diversion: 1000 cfs – 5000 cfs
Medium diversion: 5001 cfs – 15000 cfs
Large diversion: > 15000 cfs

SUBPROVINCE 1

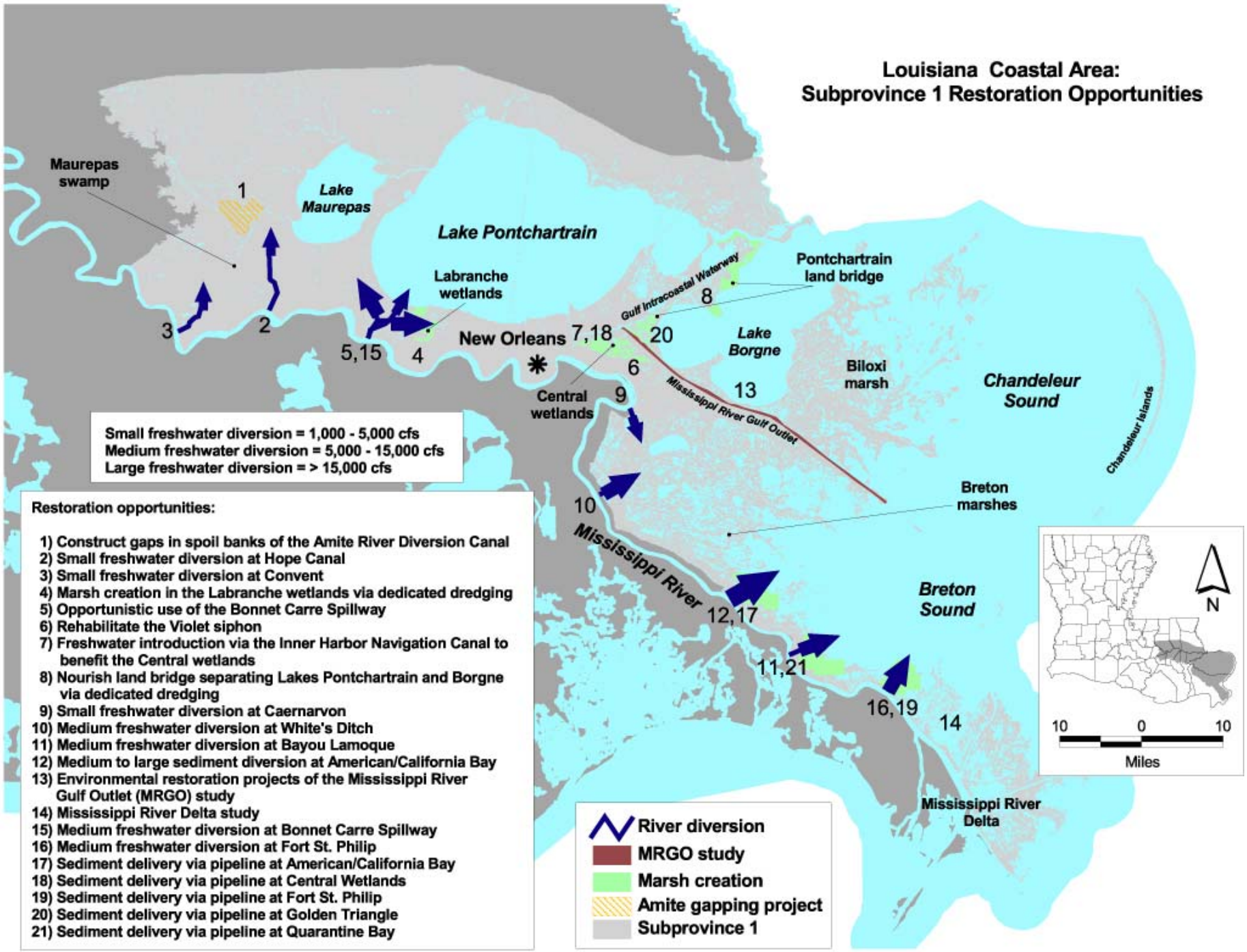
Restoration Opportunity	Description
Construct gaps in spoil banks of the Amite River Diversion Canal	This restoration measure involves the construction of gaps in the existing dredged material banks of the Amite River diversion canal. The purpose is to introduce sediments and nutrients into Maurepas Swamp to the west of Lake Maurepas. The Maurepas Swamp is classified as a wetland forest, and contains extensive cypress swamps. The area has experienced severe deterioration due to subsidence, a lack of freshwater circulation, and a lack of nourishment through the introduction of new sediments and nutrients. Because most of the cypress are starved for nutrients and land building sediments, they are unable to keep pace with subsidence. The proposed introduction of some freshwater and sediment during high water events would facilitate organic deposition in and productivity of the swamp and prevent further swamp deterioration.
Small freshwater diversion at Hope Canal	This measure provides for a small diversion at 50 percent duration river stage. Annual diversion corresponds to annual river stage hydrograph, controlled structure (current EPA project based on single box culvert).
Small freshwater diversion at Convent	This measure provides for small diversion at 50 percent duration river stage diverted into the Blind River headwater. Annual diversion corresponds to annual river stage hydrograph, controlled structure.
Marsh creation in the Labranche wetlands via dedicated dredging	This measure provides for sediment delivery via sediment mined from the Mississippi River. The required dredging volume would correspond to a net yield of approximately 72 wetland acres per year.
Opportunistic use of the Bonnet Carre Spillway	This restoration measure involves freshwater introductions via the opportunistic use of the existing flood control structure at the Bonnet Carre Spillway. The spillway is currently operated to remove excess

Restoration Opportunity	Description
	water from the Mississippi River during flooding events and pass the water through the Bonnet Carre Spillway into Lake Pontchartrain. This measure would allow for freshwater introductions to be delivered to Lake Pontchartrain and the Labranche wetlands during times of high river water levels. Thus, the river diversions would help reduce salinities in the southwest corner of Lake Pontchartrain and nourish the intermediate and brackish marshes with sediment and nutrients.
Rehabilitate the Violet Siphon	This restoration measure involves the rehabilitation of the existing Violet Siphon structure. The purposes are to improve the operation of the Violet Siphon and enhance freshwater flows into the Central Wetlands. The cypress swamps in this area have been lost due to saltwater intrusion, and the intermediate marshes are stressed by subsidence and a lack of freshwater, sediment, and nutrients. This success of this measure would be enhanced with the freshwater introductions via the Inter Harbor Navigation Channel Lock measure.
Freshwater introduction via the Inner Harbor Navigation Canal to benefit the Central Wetlands	
Nourish land bridge separating Lakes Pontchartrain and Borgne via dedicated dredging	This restoration measure involves wetland creation through the dedicated dredging of sediments from offshore sources. The purpose of this measure is to create wetlands by placing dredged sediments in the shallow open waters within the land bridge separating Lakes Pontchartrain and Borgne the Labranche Wetlands. This area has experienced some wetland deterioration and loss due to erosion from wave energies in Lake Borgne. Reinforcing the land bridge between the two lakes would help maintain the salinity gradients in Lake Pontchartrain and ensure the long-term sustainability of the wetland ecosystems in the area.

Restoration Opportunity	Description
Small freshwater diversion at Caernarvon	Since its construction in 1992, the Caernarvon structure has been operated as a salinity control measure, with freshwater introductions ranging between 1,000 cfs to 10,000 cfs. The primary purpose of the Caernarvon project has been to maintain salinity gradients in the central portion of Breton Sound. The proposed LCA restoration measure would seek a re-authorization of the Caernarvon project purpose to include wetland creation and restoration, thereby altering the project's operational plan and increasing the average freshwater introduction rate to 5,000 cfs on average. This change would help decrease the rate of wetland loss in the area.
Medium freshwater diversion at White's Ditch	This measure provides for a medium diversion at 50 percent duration river stage into central Riv aux Chene area. Annual diversion corresponds to annual river stage hydrograph, controlled structure.
Medium freshwater at Bayou Lamoque	This measure provides for the refurbishment and operation of the existing Bayou Lamoque diversion structures at maximum river stage, annual diversion corresponds to annual river stage hydrograph, controlled structures require mechanical rehabilitation and operational security modifications.
Medium to large sediment diversion at American/California Bay	This measure provides for a medium diversion at 50 percent duration river stage. Annual diversion corresponds to available river stage, uncontrolled diversion. Sediment enrichment assumes use of 24-inch dredge at capacity for three months. Three month yield =2,727, 000 yd^3 at an average depth of 10 feet with 50 percent compaction and 80 percent retention. This corresponds to approximately 138-ppm additional sediment in the diversion at 110,000 cfs.
Environmental restoration projects of the Mississippi River Gulf Outlet (MRGO) study	This restoration measure involves the implementation of the environmental restoration projects contained in the MRGO Study. In response to public concerns, environmental affects and national economic development considerations, an ongoing study is re-evaluating the viability of operation and maintenance of this project. This study would also recommend various environmental restoration projects that would reduce saltwater intrusion into Lake Pontchartrain, the Biloxi marshes, the Central Wetlands, and the Golden Triangle

Restoration Opportunity	Description
	marshes, which degraded large expanses of freshwater marshes and accelerated habitat switching in these areas.
Mississippi River Delta Study	The study is to greatly increase the deposition of Mississippi River sediments on the shallow continental shelf, while insuring navigation interests. Sediment, nutrients and fresh water would be re-directed to restore the quality and sustainability of the Mississippi River Delta Plain, its coastal wetland complex, and the Gulf of Mexico.
Medium freshwater diversion at Bonnet Carre Spillway	This measure consists of a medium diversion with east and west branches into wetlands - 10,000 cfs at 50 percent duration river stage diverted through the existing flood control structure – redirected through the guide levees into adjacent wetlands, annual diversion corresponds to annual river stage hydrograph, with controlled structures.
Medium freshwater diversion at Fort St. Philip	This measure provides for a medium diversion at 50 percent duration river stage into area north east of fort. Annual diversion corresponds to annual river stage hydrograph, uncontrolled diversion.
Sediment delivery via pipeline at American/California Bay	This measure provides for sediment delivery via programmatic sediment mining from the Mississippi River, with the required dredging volume corresponding to a net yield of approximately 432 wetland acres per year.
Sediment Delivery via pipeline at Central Wetlands	This measure provides for sediment delivery via sediment mined from the Mississippi River placed in the Central wetlands adjacent to the MRGO and Violet canal. Required dredging volume corresponding to a net yield of approximately 92 wetland acres per year.
Sediment delivery via pipeline at Fort St. Philip	This measure provides for sediment delivery via programmatic sediment mining from the Mississippi River. Required dredge volume corresponding to a net yield of approximately 104 wetland acres per year.
Sediment delivery via pipeline at Golden Triangle	This measure provides for sediment delivery via sediment mined from the Mississippi River placed in the area formed by the confluence of the MRGO and Gulf Intracoastal Waterway (GIWW) and Lake Borgne.

Restoration Opportunity	Description
	Required dredging volume corresponding to a net yield of approximately 72 wetland acres per year.
Sediment delivery via pipeline at Quarantine Bay	This measure provides for sediment delivery via programmatic sediment mining from the Mississippi River, with the required dredging volume corresponding to a net yield of approximately 391 wetland acres per year.


Louisiana Coastal Area:
Subprovince 1 Restoration Opportunities
Maurepas swamp
Lake Maurepas
Lake Pontchartrain
Labranche wetlands
Pontchartrain land bridge
Gulf Intracoastal Waterway
New Orleans
Lake Borgne
Biloxi marsh
Chandeleur Sound
Chandeleur Islands
Mississippi River Gulf Outlet
Central wetlands
Breton marshes
Mississippi River
Breton Sound
Mississippi River Delta
1
2
3
4
5,15
6
7,18
8
9
10
11,21
12,17
13
14
16,19
20
Small freshwater diversion = 1,000 - 5,000 cfs
Medium freshwater diversion = 5,000 - 15,000 cfs
Large freshwater diversion = > 15,000 cfs
Restoration opportunities:
1) Construct gaps in spoil banks of the Amite River Diversion Canal
2) Small freshwater diversion at Hope Canal
3) Small freshwater diversion at Convent
4) Marsh creation in the Labranche wetlands via dedicated dredging
5) Opportunistic use of the Bonnet Carre Spillway
6) Rehabilitate the Violet siphon
7) Freshwater introduction via the Inner Harbor Navigation Canal to benefit the Central wetlands
8) Nourish land bridge separating Lakes Pontchartrain and Borgne via dedicated dredging
9) Small freshwater diversion at Caernarvon
10) Medium freshwater diversion at White's Ditch
11) Medium freshwater diversion at Bayou Lamoque
12) Medium to large sediment diversion at American/California Bay
13) Environmental restoration projects of the Mississippi River Gulf Outlet (MRGO) study
14) Mississippi River Delta study
15) Medium freshwater diversion at Bonnet Carre Spillway
16) Medium freshwater diversion at Fort St. Philip
17) Sediment delivery via pipeline at American/California Bay
18) Sediment delivery via pipeline at Central Wetlands
19) Sediment delivery via pipeline at Fort St. Philip
20) Sediment delivery via pipeline at Golden Triangle
21) Sediment delivery via pipeline at Quarantine Bay
River diversion
MRGO study
Marsh creation
Amite gapping project
Subprovince 1
N
10 0 10
Miles